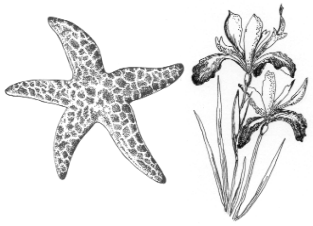
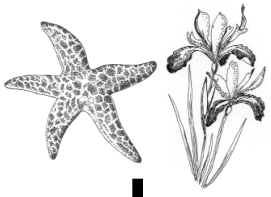
Creating
Coastal Stewardship
through Science



Defining Habitats

On-Site Activities

How Can We Understand the Habitats of Point Reyes National Seashore?



Using the Bear Valley Visitor Center exhibits and Field Journal Sheets, students will identify five different habitat types found at Point Reyes National Seashore. They will also examine the known environmental and geological factors that determine where they are located. After the Bear Valley Visitor Center activity, students will use field observation and data collection to identify specific flora and fauna that depend on these habitats.

Time required: 3 hours
Location: Bear Valley Visitor Center and selected habitat type
Suggested group size: entire class

Subject(s): science, art, English
Concept(s) covered: ecological principles and studies, the influences of environmental and abiotic factors on habitats

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Last updated: 10/09/00

Student Outcomes

At the end of this activity, students will be able to:

- Explain what factors influence habitat.
- Name three different types of habitat.
- Locate where these habitats occur in Point Reyes National Seashore.
- Observe and identify plants and animals using key characteristics and field guides in selected habitats.

California Science Standard Links (grades 6-8)

This activity is linked to the California Science Standards in the following areas:

6th grade
- 2a- water running downhill is a dominant process on the landscape
- 2b- rivers and streams are dynamic systems
- 2c- beaches are dynamic systems in which sand is supplied by rivers
- 2d- earthquakes, landslides, and floods change human and wildlife habitats

On-site Activity

Creating Coastal Stewardship through Science

4e- differences in elements such as pressure may result in changes in weather
5a- food webs
5b- organisms and the physical environment
5c- organisms can be categorized by functions they serve in an ecosystem
5e- resources available and abiotic factors
7b- use appropriate tools/technology to perform tests, collect/display data
7c- develop qualitative statements about the relationships between variables
7e- evidence is consistent with a proposed explanation
7f- interpret a simple scale map
7h- identify changes in natural phenomena over time

7th grade
5a- plants and animals have levels of organization for structure and function
7a- use appropriate tools/technology to perform tests, collect/display data
7d- communicate logical connections

8th grade
9a- plan and conduct a scientific investigation to test a hypothesis
9b- evaluate the accuracy and reproducibility of data

National Science Standard Links (grades 5-8)

This activity is linked to the National Science Standards in the following areas:

- Content Standard A — Design and conduct a scientific investigation; Use appropriate tools and techniques to gather, analyze, and interpret data; Develop descriptions, explanations, predictions, and models using evidence; think critically and logically to make the relationships between evidence and explanations; Understanding about scientific inquiry.
- Content Standard C — Populations and ecosystems; Diversity and adaptations of organisms; Structure and function in living systems.
- Content Standard F — Personal health; Populations, resources, and environments; Natural hazards.

Materials

To be provided by the teacher:

- Pencils
- Clipboards
- Two watches for keeping track of time
- The compiled guide book from the pre-visit activity **What Flora and Fauna Can We Expect to See on Our Field Trip?**

To be photocopied from this guide:

- Constructed field journals for each student, chaperone and teacher.

Available for checkout at Bear Valley Visitor Center or Clem Miller Environmental Education Center:

- Habitat Backpack

Vocabulary

animal sign, annual precipitation, amphibian, behavior, bird, community, crown, diameter, dominant, environmental factors, erosion, fish, geological factors, geology, habitat, hypothesis, International Biosphere, mammal, native, predator, prey, reptile, ridge, slope, species, topography, understory

Procedures

Note to Teachers: *This activity consists of two parts: the Bear Valley Visitor Center orientation activities and the field observation and identification activities in the habitat that you have chosen to visit for in-depth study.*

It is important to complete the Bear Valley Visitor Center orientation activities first and then to complete the field journal activities. (See "Teacher Preparation" for location considerations.)

Bear Valley Visitor Center Activity

Contact the Ranger at the information desk and request to use the auditorium for 15 minutes for the following discussion (or sit outside at the picnic tables located in the picnic area).

A. Have a discussion about habitats

1) ***What are habitats? What are communities? Why are they found where they are?*** Habitats are not randomly located. Plant communities and habitats are located only in the places where they can survive.
2) ***What causes this?*** Plants have their own requirements for growth. The combination of environmental and geologic factors determines where plants can grow.
3) ***What are the environmental factors?*** Rain, wind exposure, and temperature all affect plant growth rates and where they can survive.
4) ***What are the geologic factors?*** Soil types and depth, their ability to hold moisture, their fertility as well as topography, also affect the placement of plant communities.

B. Explain the activity

1) Instruct the students to individually examine the exhibits carefully. These panels will help them complete the activity sheets.
2) Instruct students to treat the exhibits with care. Remind them not to handle the elements in the displays. Animals and plants are very fragile. Running and yelling are not permitted.
3) Designate a time limit for completing the activity sheets. Have the students regroup in the auditorium or in the picnic area. Twenty minutes should be appropriate.
4) Student should return to the auditorium when the teacher determines that the activity is finished.

5) Have the students use the exhibits to find the different types of communities found at Point Reyes National Seashore. Place the answers on the Activity Sheets. (All answers are found under the major community "banners".)

6) Using the maps and exhibits, students will then identify some of the environmental factors that determine habitats and hypothesize where different types of habitats will potentially be found. Their answers will be placed on the Bear Valley Field Journal Sheets.

Note to Teachers: *All the information needed for the activity is found on either the Activity Sheet or in the text of the exhibits. (The community exhibits are the most pertinent.)*

C. Return to Auditorium/Conclusion

1) Draw the activity to a close by discussing the results and what was learned. Summarize the geologic and environmental factors that influence habitats. Rainfall, the Inverness Ridge, types of soils, predominant winds from the northwest, the ocean's influence in both marine and land habitats have all combined to make Point Reyes unique, diverse and a national treasure.

2) What makes Point Reyes National Seashore so unique? (discussion)
- In approximately 100 square miles, 6 major types of communities exist.
- This equates into a great amount of diversity in a small area. There are over 480 species of birds, over 100 land vertebrates and 900 plus species of plants.
- The marine ecosystem off the coast of Point Reyes is one of the five most productive marine ecosystems in the entire world.
- For this reason, Point Reyes National Seashore and much of the surrounding state and federal land and ocean area was designated by the United Nations as an International Biosphere in 1988.
- Connect what was learned in this activity with the upcoming habitat field observations.

Field Observation Activity

1. Logistics

A. For all habitats, review from the field journal: "Things to Remember", "Things to Watch Out For", "Using Leaves to Identify Plants".
- For land habitats review "Layers of Forest Life".
- For seashore habitats review: "Intertidal Life Zo**nes**" on NP 6 of "Defining Habitats" newspaper.

B. Check out the habitat backpack from Bear Valley Visitor Center (Ed Center users pick it up at the Ed Center).

2. **Begin the activity**
   - **A.** Instruct all students to form a line with adults evenly spaced. Tell students that speaking in whispers and being quiet may allow them to see more wildlife. Tell students to look for patterns in plant distribution and to watch for wildlife while they walk.
   - **B.** When you have walked 5 to 10 minutes (depending on your time limitations), you will begin to place individual students or pairs of students at locations along the trail to do their field observations.
   - **C.** Before you place any students, place an adult with a watch first.
   - **D.** Then place pairs of students interspersed with adults. Place students approximately every 30 feet along the trail until all the students have been placed.
   - **E.** Students have 20 minutes to record data in their field journals. Adults should check with students to insure that they understand journal sheets and can proceed independently.
   - **F.** When the 20 minutes has elapsed, the adult that was placed first will walk up the trail and quietly collect all of the students.
   - **G.** When the entire group has reassembled, locate a place for a discussion. Students will now share the results from their observations and discuss their experiences.

3. **Concluding activity**
   - **A.** While students are walking back from the observation activity, identify the plants and animals that they have seen. This can be done by using the data they have collected, the identification cards found in the habitat backpack, and field guides or the guide book compiled by the students in the pre-visit activity **What Flora and Fauna Can We Expect to See on Our Field Trip?** Have the students mark the species that they have seen on their checklists.
   - **B.** When some or all of the plants and animals have been identified, draw conclusions from the two on-site activities and prepare students for the post-visit activities.

Bear Valley Visitor Center

Teacher Master

Your job is to discover how land and ocean communities interact with environmental factors such as wind, landscape, and rain. You will answer some questions and use the blank map titled "Write on This Map!" to understand the Point Reyes ecosystem. All of the answers are in the Bear Valley Visitor Center exhibits. Remember these are exhibits; treat them with respect.

Communities, Habitats, and Species

Use the Bear Valley Visitor Center exhibits to discover which land and ocean communities are found here. Also, list two resident species for each community.

Community	Two Resident Species
1. *Grassland/Coastal scrub*	*Black-tailed deer* *California quail*
2. *Open Ocean*	*Gray whales* *Elephant seals*
3. *Coast*	*Common murres* *Harbor seals*
4. *Forest*	*Mountain lions* *Northern spotted owls*
5. *Coastal wetlands*	*Great blue herons* *Western grebes*

Discovery Questions

One type of land community is divided into two subcommunities dominated by two different species of trees.

What community has two subcommunities?

forest community

What are the two subcommunities?

Bishop pine and Douglas fir

Bear Valley Visitor Center

Why are bishop pines found here at Point Reyes?

They are found here because of the geology and soil type. The thin, infertile, rocky, granitic soils are the only place at Point Reyes where bishop pines can be found.

Find the Coastal Wetland Community display. Look to the left and find the panel that reads "Coastal Scrub". In which of the five community types does Coastal Scrub belong?

grassland

List five species that you would find in the Coastal Scrub community:

coyote, quail, turkey vulture, black-tailed deer, redtail hawk, marsh hawk, striped skunk, red-sided garter snake, jackrabbit, bobcat, badger

Map Activity

Using what you have learned in the exhibits, use "Write On This Map!" Journal Sheet to label where you would expect to find at least two of the five habitats that are found at Point Reyes National Seashore.

See Teacher Master for "Plant Communities at Point Reyes", page 97.

Environmental Factors

Use the relief map in the Bear Valley Visitor Center and the "Annual Precipitation" Field Journal sheet to discover how winds, landscape, and rain affect habitats.

Wind Factors

- Predominant winds at Point Reyes are from the west/northwest in the spring, summer, and sall.
- Wind speeds average between 25 and 40 miles per hour throughout the year. (The highest wind speed was recorded at the Lighthouse area at 133 miles per hour!)

Discovery Question

List three ways that high wind speeds can affect habitats, plants, or animals:

- ***can determine the amounts of moisture available to organisms***
- ***can limit plant height***
- ***can limit animals that depend on taller trees***
- ***can be a good habitat if it deters larger predators from the area***

Bear Valley Visitor Center

Teacher Master

Map Activity

Use arrows to label the northwest winds on the "Write On This Map!" Field Journal sheet.

See Teacher Master for "Write On This Map!", page 96.

Landscape Factors

- The Inverness Ridge is the backbone of the Point Reyes peninsula. Its height shelters the east side of Point Reyes from strong winds.

Map Activity

Check out the relief map near the entrance to Visitor Center. Locate and label the following on your map:

Inverness Ridge

Mount Wittenberg and its elevation

Tomales Bay

Drakes Bay

See Teacher Master for "Write On This Map!"

Rainfall Factors

- Study the map labeled "Annual Precipitation".

Question

What is the highest annual precipitation found at Point Reyes?

40 inches

Map Activity

Label which side of the Inverness Ridge gets most of the rainfall on your "Write On This Map!" Field Journal sheet.

eastern side of ridge

See Teacher Master for "Write On This Map!"

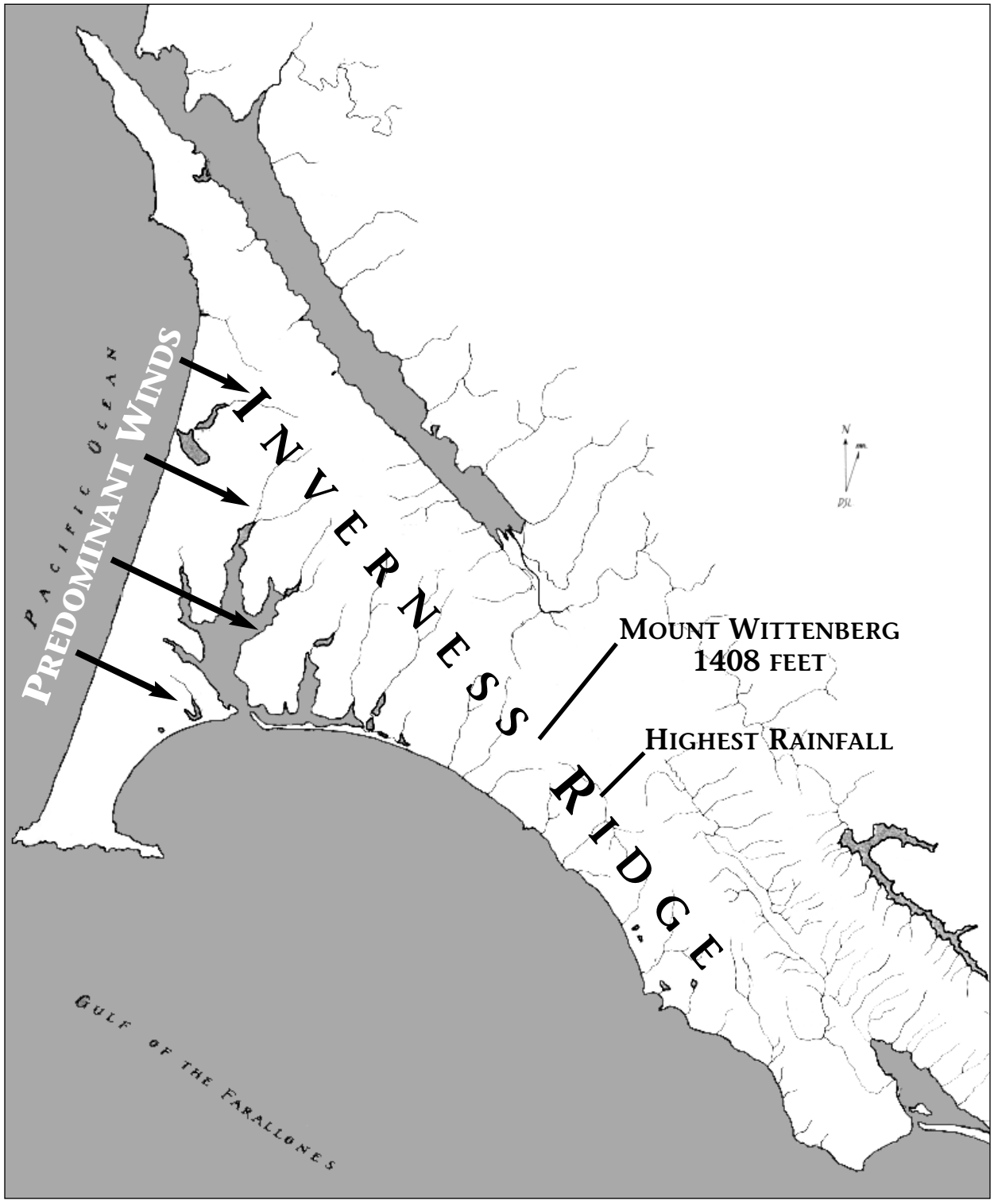
Conclusion

Using what you have read in the exhibits and what you know about rainfall, topography, and winds, create a hypothesis to explain why mixed woodland forests are found on the east side of the Inverness Ridge and coastal scrub communities are found on the west side of the ridge.

The protection from predominant winds and the increase in annual precipitation contribute to the placement of mixed woodland forest on the east side of the ridge. Because coastal scrub can survive stronger winds and needs less moisture to survive, the coastal scrub can be found on the west side of the ridge.

Teacher Master

Write On This Map!

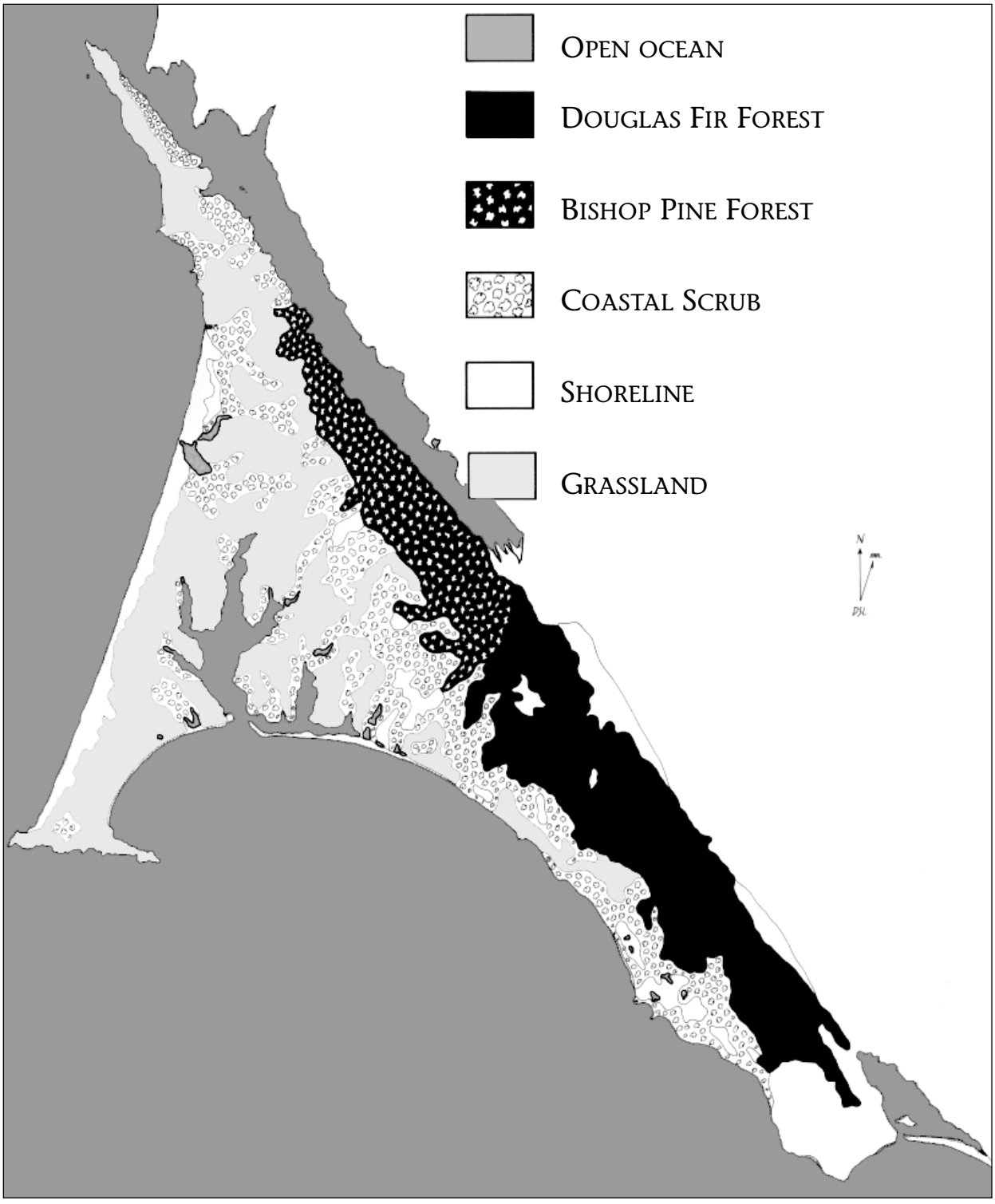


Label the following:

- two of the five habitats found at Point Reyes (see following Teacher Master)
- northwest winds
- Inverness Ridge, Mount Wittenberg (and elevation), Tomales Bay, Drakes Bay
- side of the Inverness Ridge that gets the most rainfall

Plant Communities at Point Reyes

Teacher Master



Major plant communities at Point Reyes peninsula

Name _____ Date _____

Field Journal Sheet

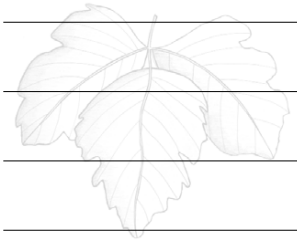
Things to Remember While on the Habitats Field Trip

Three Safety Precautions:

1. _____

2. _____

3. _____



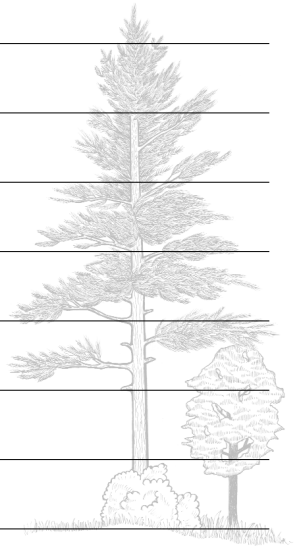
Four Resource Protection Behaviors:

1. _____

2. _____

3. _____

4. _____



Three Things to Keep in Mind When Visiting Any part of the National Park System:

1. _____

2. _____

3. _____

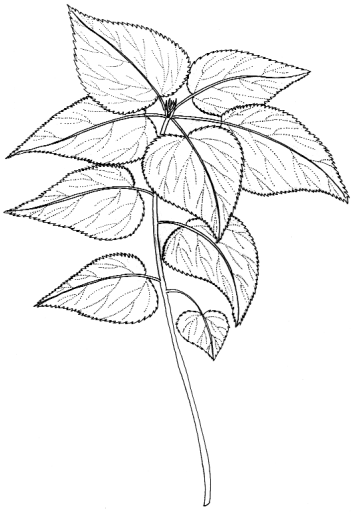
Name _____ Date _____

Field Journal Sheet

Three Things to Watch out for . . . and How to Avoid Them!!

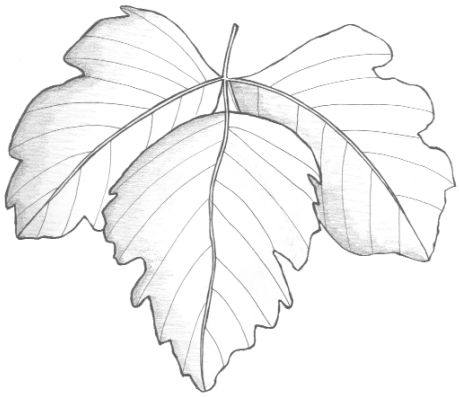
Stinging nettle

Stinging nettle is a tall plant with needlelike hairs, which can create a burning or stinging sensation for up to 24 hours. If you see this plant, do not touch it.



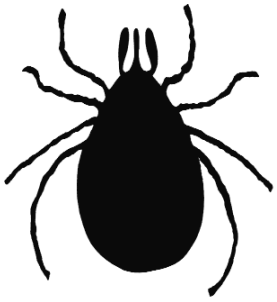
Poison oak

Poison oak has three smooth, shiny leaflets which are bright green or reddish. It can grow up trees as a vine, as a small bush, or as a small ground cover plant. Poison oak causes an itchy, blistering irritation which can last for one to two weeks. Even when leaves are not present, it is possible to get poison oak. Wash all skin and clothing that may have come in contact with poison oak with cool water and a grease-cutting soap.



Ticks

Ticks carrying Lyme disease are found at Point Reyes National Seashore. Check your body after a hike. Wear light colored long pants and shirts to help find ticks. Tuck your pant legs into your socks.



Name _____ Date _____

Field Journal Sheet

Bear Valley Visitor Center

Your job is to discover how land and ocean communities interact with environmental factors such as wind, landscape, and rain. You will answer some questions and use the blank map titled "Write On This Map!" to understand the Point Reyes ecosystem. All of the answers are in the Bear Valley Visitor Center exhibits. Remember these are exhibits; treat them with respect.

Communities, Habitats, and Species

Use the Bear Valley Visitor Center exhibits to discover which land and ocean communities are found here. Also, list two resident species for each community.

Community	Two Resident Species
1.	
2.	
3.	
4.	
5.	

Discovery Questions

One type of land community is divided into two subcommunities dominated by two different species of trees.

What community has two subcommunities?

What are the two subcommunities?

Field Journal Sheet

Name _____ Date _____

Bear Valley Visitor Center

Why are bishop pines found here at Point Reyes?

Find the Coastal Wetland Community display. Look to the left and find the panel that reads "Coastal Scrub". In which of the five community types does Coastal Scrub belong?

List five species that you would find in the Coastal Scrub community:

Map Activity

Using what you have learned in the exhibits, use "Write On This Map" Field Journal sheet to label where you would expect to find at least two of the five habitats that are found at Point Reyes National Seashore.

Environmental Factors

Use the relief map in the Bear Valley Visitor Center and the "Annual Precipitation" Field Journal sheet to discover how winds, landscape, and rain affect habitats.

Wind Factors

- Predominant winds at Point Reyes are from the west/northwest in the spring, summer, and fall.
- Wind speeds average between 25 and 40 miles per hour throughout the year. (The highest wind speed was recorded at the Lighthouse area at 133 miles per hour!)

Discovery Question

List three ways that high wind speeds can affect habitats, plants, or animals:

Name _____ Date _____

Bear Valley Visitor Center

Field Journal Sheet

Map Activity
Use arrows to label the northwest winds on the "Write On This Map" Field Journal sheet.

Landscape Factors

- The Inverness Ridge is the backbone of the Point Reyes peninsula. Its height shelters the east side of Point Reyes from strong winds.

Map Activity
Check out the relief map near the entrance to Visitor Center. Locate and label the following on your map:

Inverness Ridge
Mount Wittenberg and its elevation
Tomales Bay
Drakes Bay

Rainfall Factors

- Study the map labeled "Annual Precipitation".

Question
What is the highest annual precipitation found at Point Reyes?

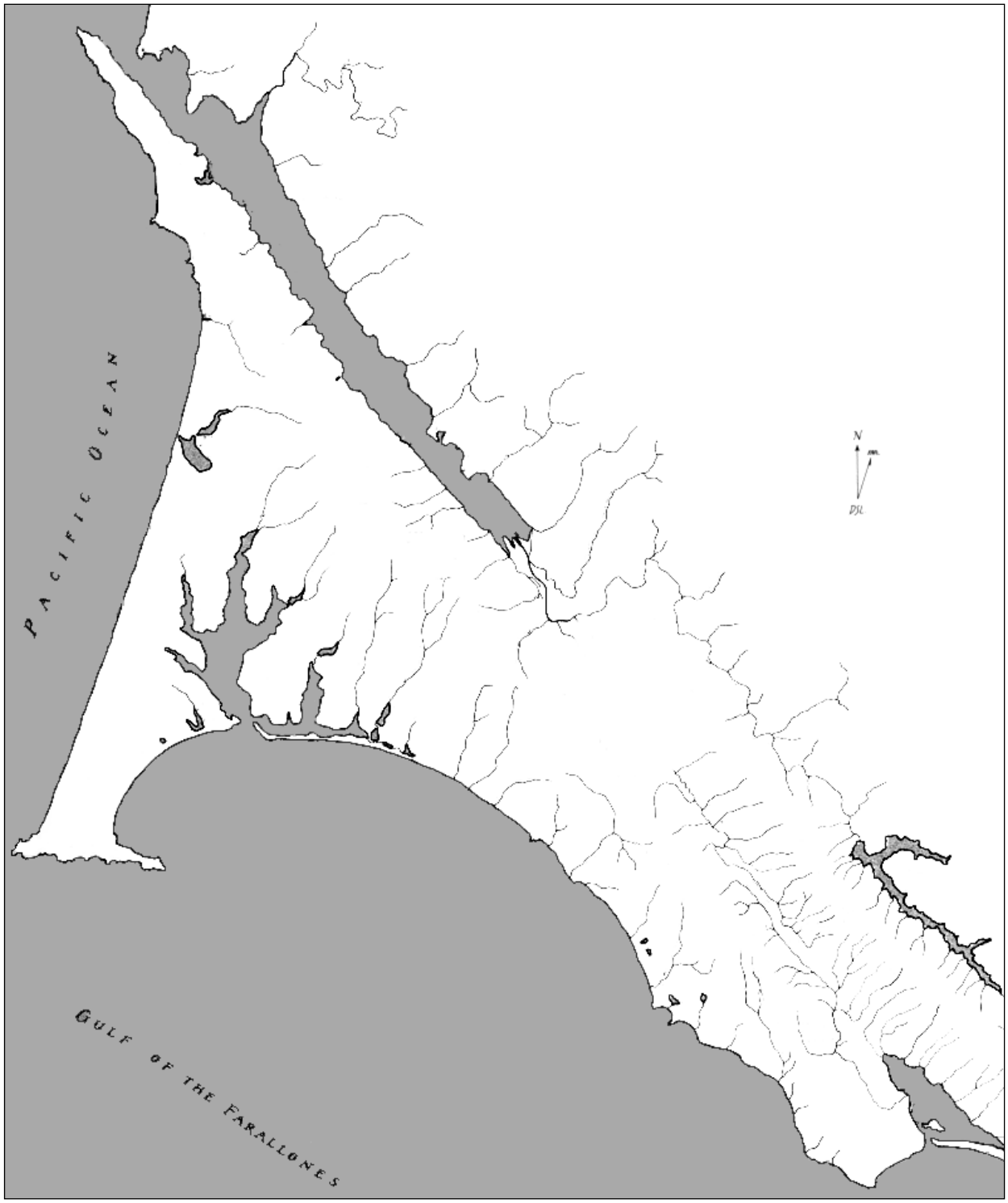
Map Activity
Label which side of the Inverness Ridge gets most of the rainfall on your "Write On This Map" Field Journal sheet.

Conclusion
Using what you have read in the exhibits and what you know about rainfall, topography' and winds, create a hypothesis to explain why mixed woodland forests are found on the east side of the Inverness Ridge and coastal scrub communities are found on the west side of the ridge.

Field Journal Sheet

Name _____ Date _____

Bear Valley Visitor Center
Write on This Map!



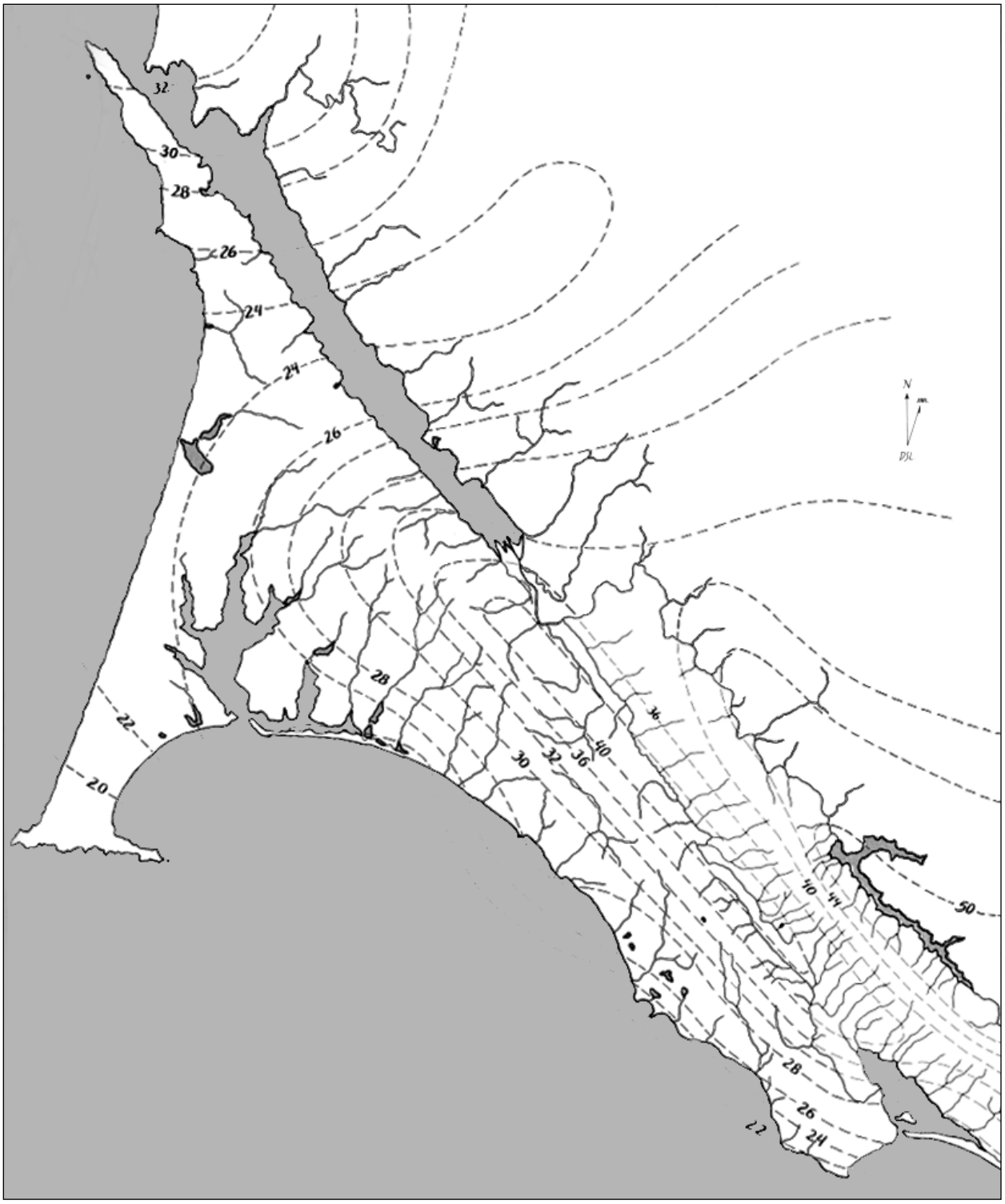
Label the following:

- two of the five habitats found at Point Reyes
- northwest winds
- Inverness Ridge, Mount Wittenberg (and elevation), Tomales Bay, Drakes Bay
- side of the Inverness Ridge that gets the most rainfall

Name _____ Date _____

Field Journal Sheet

Bear Valley Visitor Center
Annual Precipitation



Annual precipitation at Point Reyes Peninsula (based on data from Marin Water District)

Name _____ **Date** _____

Field Journal Sheet

Habitat Information

Observation start time: _____

Observation end time: _____

Location: ❑ Bear Valley Trail ❑ Coast Trail
❑ Limantour Beach/Estuary ❑ Woodpecker Trail
❑ Other

Season: ❑ fall ❑ winter ❑ spring ❑ summer

Current weather: ❑ sunny ❑ partly cloudy ❑ cloudy ❑ foggy ❑ rainy

Wind speed: ❑ calm (no wind)
❑ light breeze (leaves rustle)
❑ moderate breeze (small branches and leaves move)
❑ strong wind (trees sway)

Air temperature: _____

Terrain: ❑ Flat ❑ Along creek or drainage
❑ Gently sloping ❑ Rocky
❑ Hilly

Exposure to elements: ❑ fully exposed ❑ shaded by trees
❑ underwater ❑ exposed during low tides

Soil moisture:
Collect a handful of soil and squeeze it to determine the moisture content:
❑ Very wet—drips when squeezed
❑ Moist—no drips, but holds its form for a short time
❑ Dry—will not hold its form or is solid

Soil description: ❑ Muddy ❑ Solid ❑ Loose
❑ Sandy ❑ No soil present

When visiting Limantour Beach:

Tides: _____ Water temperature: _____

Name _____ Date _____

Field Journal Sheet

Habitat Information

Human Disturbance

Before this land was designated as a National Seashore, people used it in a variety of ways. Even today, humans directly impact the habitat at Point Reyes through hiking, horseback riding, mountain biking, and camping.

What signs of historic impact do you see?

What signs of recent impact do you see?

What are some of the unseen impacts from being so close to a major city like San Francisco?

What Habitat Are You in Right Now?

Use your observations and the "Habitat Key" on the following page to identify the habitat that you are currently visiting:

- ❑ Coastal Scrub
- ❑ Riparian
- ❑ Mixed Woodland
- ❑ Estuary
- ❑ Beach/Dunes
- ❑ Tidepools

Dominant Plants:
Based on your habitat, what two plant species should you be able to see where you are right now?

_____

_____

Common Wildlife
Based on your habitat, what two wildlife species should you be able to see where you are right now?

_____

_____

Field Journal Sheet

Name _____

Date _____

Habitat Key

	Coastal Scrub	Riparian	Mixed Woodland	Estuary	Beach/Dunes	Tidepools
Soil Moisture	DRY less than 28 inches rain/year	VERY WET (usually year-round)	MOIST to DRY receives up to 40 inches rain/year	VERY WET; influenced by tides	VERY DRY	No soil; rocky foundation
Soil Characteristics	Hard, solid	Muddy	Loose soil with decaying plants	Muddy, salty	Loose, sandy	Under water
Weather/Winds	Receives high winds and summer fog	Floods; heavily influenced by rain and runoff	Trees provide shelter from weather	Influenced by floods, coastal storms, and tides	Influenced by coastal storms and tides	Influenced by coastal storms and tides
Exposure	Fully exposed	Often shaded by fast growing trees	Heavily shaded by large trees and thick understory	Only exposed during low tides	Fully exposed; windswept	Only exposed during low tides
Terrain	Flat or hilly; along western side of Inverness Ridge and near ocean	Along creeks and drainages	Along Inverness Ridge and its eastern slope	Flat tidal zones	Gently sloping from ocean to dunes	Flat and rocky
Dominant Plants	coyote bush bush lupine cow parsnip hemlock yarrow	red alder tree stinging nettle bracken fern blackberry horsetail	live oak tree Douglas fir tree California bay elderberry poison oak	eelgrass	dune grass dune lupine beach strawberry saltbush	sea lettuce eelgrass Turkish towel kelp
Common Wildlife	black-tailed deer coyote garter snake cottontail rabbit turkey vulture California quail	raccoon Pacific tree frog coho salmon steelhead trout banana slug rough-skinned newt	black-tailed deer pocket gopher acorn woodpecker turkey vulture California quail banana slug	great blue heron northern harrier duck osprey harbor seal bat ray	willet marbled godwit harbor seal snowy plover western gull mole crab	anemone chiton sea star kelp crab barnacle mussel

Name _____ Date _____

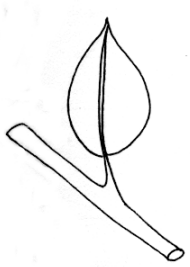
Using Leaves to Identify Plants

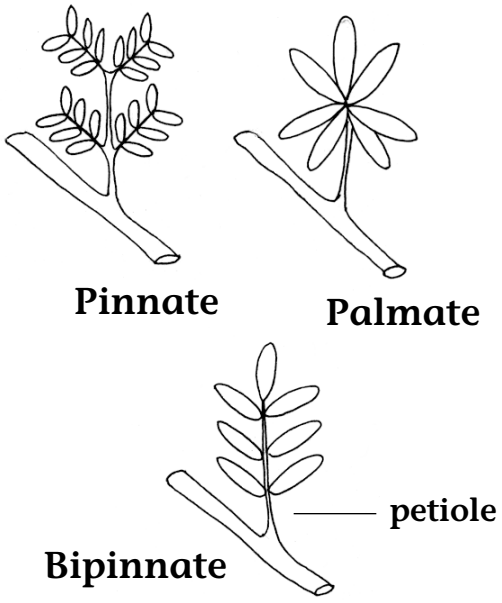
Field Journal Sheet

The way leaves look and the way they are attatched to plants will help you observe and identify plants in your habitat.

Simple Leaves

Simple leaves are easy to identify. You will be able to see only one leaf attached to the twig at each point.



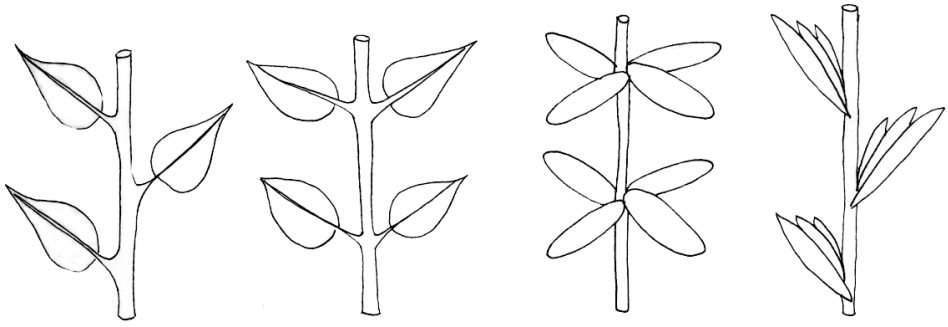


Compound Leaves

Compound leaves come in different types. They can be palmate, pinnate, or bipinnate. You will be able to identify compound leaves by the multiple leaflets that originate from the twig all attached by one larger petiole.

Leaf Attachment

Observe how the leaves are attached to the twigs.



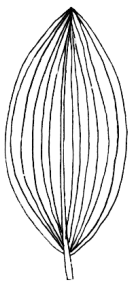
Field Journal Sheet

Name _____ Date _____

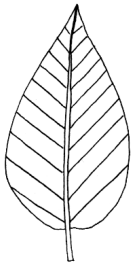
Using Leaves to Identify Plants

Venation

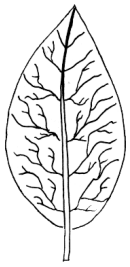
Leaf veins transport water to the leaves and food back to the roots of the plant.



Parallel



Pinnate



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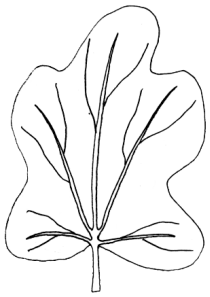
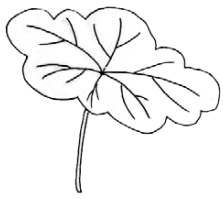


Palmate



Peltate

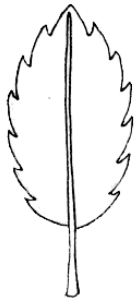
Perfoliate

Connate

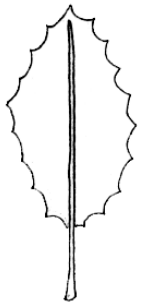
Leaf Margins

Look for different types of edges on the leaves that you are studying.

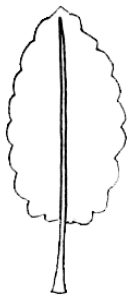
Entire



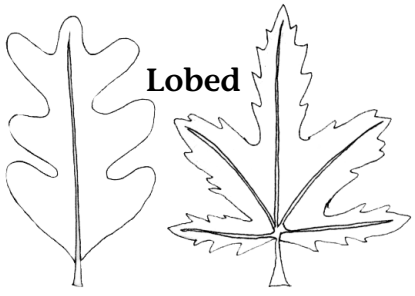
Serrate



Dentate



Crenate



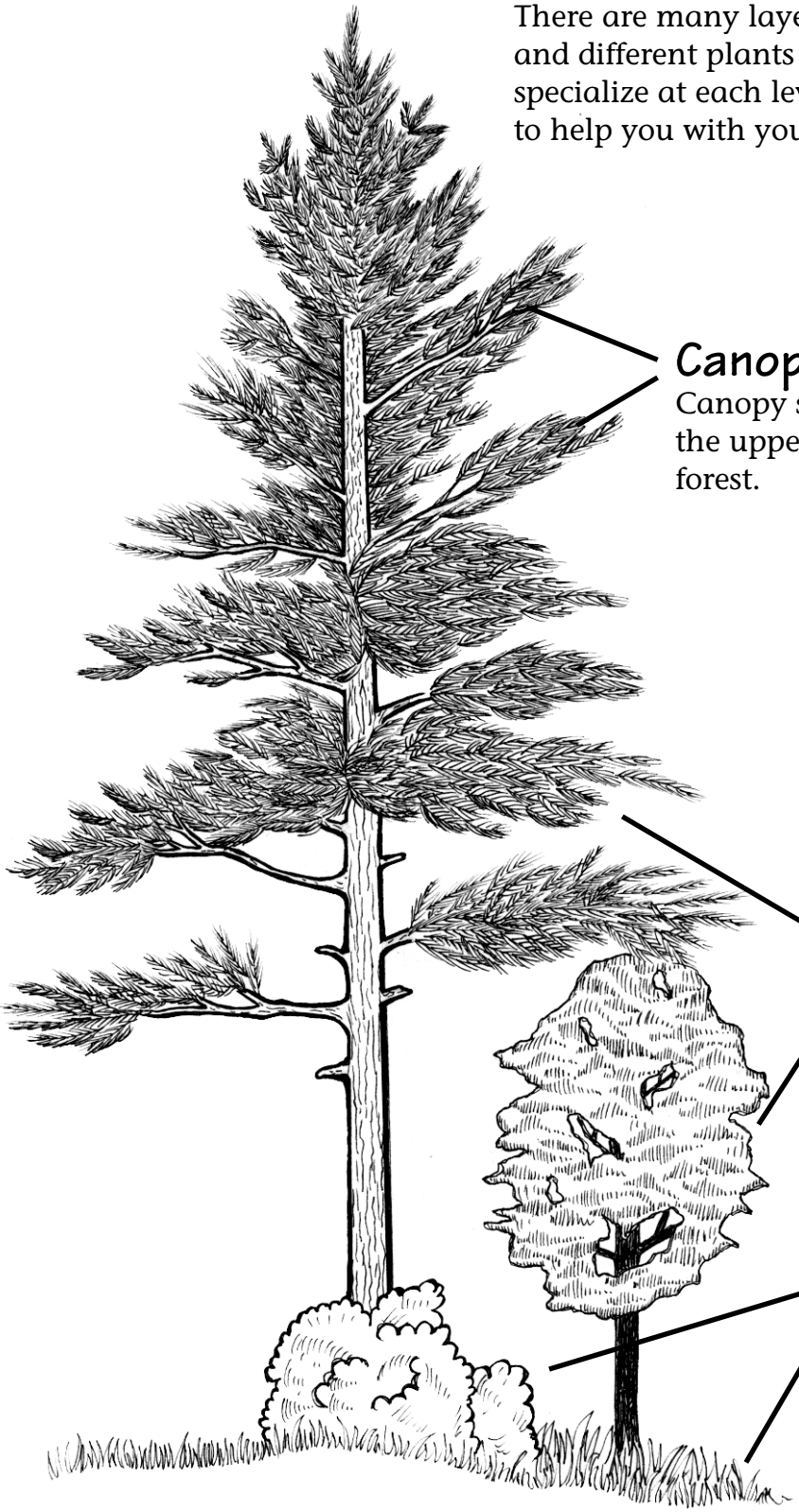
Lobed

Pinnate **Palmate**

Name _____ Date _____

Layers of Forest Life

There are many layers of life in a forest and different plants and animals that specialize at each level. Use this diagram to help you with your field observations.



Canopy

Canopy species are found in the upper level of life in a forest.

Understory

Understory species are protected by and found beneath the canopy layer.

Ground

Ground species can be found from ground level to about 10 feet off the ground.

Name _____ Date _____

Field Journal Sheet

Identifying Plants and Animals in the Field

When you don't know what kind of plant or animal you are observing, try to remember important characteris tics that will help identify the species in a field guide.

Bird:

Where is it located? What habitat are you in?
What shape is the beak?
What colors are the feathers?
What is it doing?
What is its flight pattern?

Mammal:

Where is it located? What habitat are you in?
What color(s) is the fur?
What is it doing?
How big is it?
Does it have any unique features? (antlers, big ears, short tail . . .)

Plant:

Where is it located? What habitat are you in?
What shape are the leaves?
What is the leaf arrangement?
How big is it?
Does it have any unique features? (stem shape, bark, color, flowers, cones, fruits . . .)

Amphibian:

Where is it located? What habitat are you in?
Is it a frog, toad, or salamander?
What color(s) is it?
What shape is its head and body?

Reptile:

Where is it located? What habitat are you in?
Is it a lizard, snake, skink, or turtle?
What color(s) is it?
What shape is its head and body?

Invertebrate:

Where is it located? What habitat are you in?
Is it an insect, shellfish, starfish, worm, or sponge?

Name _____ Date _____

Field Journal Sheet

Plant Observations

Habitat type: ❑ coastal scrub ❑ riparian ❑ mixed woodland ❑ estuary ❑ dunes ❑ sandy beach

Plants: Find three different plants in your area. Locate one in each category for either "seashore" or "land". Complete the chart with your observations. Watch out for poison ivy and stinging nettle!

SEASHORE	Estuary (or)	Dunes (or)	Tidepool
LAND	Ground	Understory	Canopy
Plant type: vine, shrub, tree, moss, fern, grass, herbaceous plant, other			
Height (cm)			
Stem or trunk circumference (cm)			
Stem shape or bark description			
Leaves: simple or compound?			
Leaves: How are they attached to the stem?			
Leaves: What is the vein pattern?			
Leaves: How would you describe the leaf margins?			
Describe any additional characteristics (fuzzy leaves, thorns, hairy stems, strong odor, galls...)			

Name _____ Date _____

Field Journal Sheet

Plant Observations

Sketch some or all of the plant parts listed below.

Leaf	Plant/ Flower
Bark	**Fruit, Seed, Cone**

Name _____ Date _____

Wildlife Observations

Look for different types of wildlife in your area. Fill in the chart below and on the following page with what you observe.

Circle the type of wildlife observed.	Mammals, birds, reptiles, amphibians, or other	Mammals, birds, reptiles, amphibians, or other	Mammals, birds, reptiles, amphibians, or other
Size (Approximate): height (cm) length (cm) weight (lbs)			
Color Pattern (solid, mottled, striped, spotted)			
Head *ears* (short, long, hairy, not present) *beak* (long and thin, short and blunt, not present...) *eyes* (located on front or sides) *coloration* *other features*			
Body *tail* (short, long, coloration) *body shape* (long, thin, flat, round)			
Additional characteristics			

Continued on next page...

Name _____ Date _____

Field Journal Sheet

Wildlife Observations

From your observations, fill in the rest of this chart for each species that you see.

	Circle the type of wildlife observed.	Mammals, birds, reptiles, amphibians, or other	Mammals, birds, reptiles, amphibians, or other	Mammals, birds, reptiles, amphibians, or other
Behaviors	Is this species alone or with others? (indicate numbers)			
Behaviors	What was the animal doing? (eating, resting, moving, courting, caring for young, sleeping)			
Location	What type of habitat was this animal found in? (select one: coastal scrub, riparian, mixed woodland, estuary, dunes, beach, tidepool)			
Location	Where in the habitat was this species found? (select one: ground, understory, or canopy, intertidal zone, under water)			
Identification	Draw any sign (track, scat...), if present:			
Identification	Using a field guide, identify this animal:			

Name _____ Date _____

Field Journal Sheet

Seashore Observations

Work in teams to observe the seashore habitat. Use the blank spaces to note characteristics, numbers observed, or use blank paper for sketches.

SEAWEED	
Color	
Texture	
Length	
Blade shape	
INVERTEBRATES	
ECHINODERMS sand dollar, sea urchin, brittle star, sea cucumber, sea stars	
CNIDARIANS sea anemone, hydroid, jellyfish	
CRUSTACEANS barnacle, crab, shrimp	
MOLLUSKS abalone, limpet, snail, whelk, mussel, oyster, clam, chiton, squid, octopus	
FISH	
REPTILES sea turtle	
COASTAL BIRDS	
MARINE MAMMALS whale, seal, otter	

Continued on next page…

Field Journal Sheet

Name _____ Date _____

Seashore Observations

ECOLOGICAL PROCESSES	
Hydrology Are there any streams flowing into the ocean?	
Erosion Do you see any erosion due to factors other than humans?	
HUMAN ACTIVITY	
Humans present? Activity:	
Dogs present? Activity:	
Horses? Activity:	
Trash:	
Evidence of beach fires?	
Evidence of dune erosion due to humans?	
UNUSUAL OBSERVATIONS?	

Name _____ Date _____

Field Journal Sheet

Coastal Scrub Species List

Native plants

- ❑ Cow parsnip
- ❑ Bush lupine
- ❑ Coyote bush
- ❑ Ceanothus
- ❑ California poppy
- ❑ Indian paintbrush
- ❑ Douglas iris
- ❑ Poison oak
- ❑ Huckleberry
- ❑ Bush monkey flower

Native amphibians/reptiles

- ❑ Red-sided garter snake
- ❑ Banana slug
- ❑ Pacific tree frog

Birds

- ❑ Anna's hummingbird
- ❑ California quail
- ❑ Turkey vulture
- ❑ Red-tailed hawk
- ❑ American kestrel
- ❑ Northern harrier

Mammals

- ❑ Coyote
- ❑ Spotted skunk
- ❑ Black-tailed deer (mule deer)
- ❑ Tule elk
- ❑ Mountain lion
- ❑ Pocket gopher
- ❑ Bush rabbit
- ❑ Gray fox
- ❑ Bobcat
- ❑ Deer mouse
- ❑ Raccoon

Name _____ Date _____

Field Journal Sheet

Forest Species List

Native Plants

- ❑ Coast live oak
- ❑ California coffeeberry
- ❑ Red elderberry
- ❑ California bay
- ❑ Douglas fir
- ❑ Thimbleberry
- ❑ Poison oak
- ❑ Old-man's beard
- ❑ Hazelnut
- ❑ Tan oak
- ❑ Ceanothus
- ❑ Bishop pine
- ❑ California hazelnut
- ❑ Bay laurel
- ❑ Madrone
- ❑ California buckeye
- ❑ Manzanita
- ❑ Huckleberry

Native amphibians/reptiles

- ❑ California newt
- ❑ Banana slug
- ❑ Terrestrial garter snake

Birds

- ❑ California quail
- ❑ Acorn woodpecker
- ❑ Turkey vulture
- ❑ Steller's jay

Mammals

- ❑ Wood rat
- ❑ Black-tailed deer
- ❑ Mountain lion
- ❑ Striped skunk
- ❑ Western gray squirrel

Name _____ **Date** _____

Field Journal Sheet

Riparian Species List

Native Plants

- ❑ Miner's lettuce
- ❑ Horsetail
- ❑ Stinging nettle
- ❑ Yellow willow
- ❑ Red alder
- ❑ Blackberry

Native amphibians/reptiles

- ❑ Red-legged frog
- ❑ Rough-skinned newt
- ❑ Aquatic garter snake
- ❑ Pacific tree frog
- ❑ Salamander

Mammals

- ❑ Raccoon
- ❑ Black-tailed deer

Fish

- ❑ Coho salmon
- ❑ Steelhead trout

Invertebrates

- ❑ Banana slug

Birds

- ❑ Olive-sided flycatcher
- ❑ Wilson's warbler
- ❑ Red-shouldered hawk
- ❑ Northern harrier
- ❑ Great-horned owl
- ❑ Northern spotted owl

Name _____ Date _____

Field Journal Sheet

Estuary Community Species List

Birds

- ❑ Snowy egret
- ❑ Great blue heron
- ❑ Mallard
- ❑ Green-winged teal
- ❑ Northern shoveler
- ❑ Marbled godwit
- ❑ Willet
- ❑ Osprey
- ❑ Black brant
- ❑ Pied-billed or Western Grebe
- ❑ Surf or White-winged Scoter

Native Plants

- ❑ Eelgrass
- ❑ Cordgrass
- ❑ Pickleweed
- ❑ Salt grass

Marine Invertebrates

- ❑ Washington clam
- ❑ White sand clam
- ❑ Shrimp
- ❑ Fat innkeeper
- ❑ Geoduck
- ❑ Nudibranch
- ❑ Hydroid
- ❑ Sponge
- ❑ Tunicate
- ❑ Feather-duster worm
- ❑ Red scale worm
- ❑ Pea crab
- ❑ Oregon shore crab
- ❑ Gaper clam
- ❑ Channeled basket whelk
- ❑ Tall-spired horn snail

Fish

- ❑ Goby fish
- ❑ Bat ray
- ❑ Leopard shark
- ❑ Rubberlips
- ❑ Topsmelt
- ❑ Pacific herring
- ❑ Coho salmon
- ❑ Flounder

Mammals

- ❑ Harbor seal
- ❑ Raccoon

Name _____ Date _____

Field Journal Sheet

Sandy Beach/Dune Community Species List

Birds

- ❑ Snowy plover
- ❑ Black-bellied plover
- ❑ Marbled godwit
- ❑ Willet
- ❑ Heermann's gull
- ❑ Ring-billed gull
- ❑ Western gull
- ❑ Brown pelican
- ❑ Sanderling
- ❑ Turkey vulture
- ❑ Raven

Marine Invertebrates

- ❑ "Beach hopper" amphipod
- ❑ Sand crab (mole crab)
- ❑ *Velella velella* (by the wind sailor)
- ❑ Sand dollar
- ❑ Shore crab

Plants

- ❑ American dune grass
- ❑ Sand verbena
- ❑ Saltbush
- ❑ Douglas bluegrass
- ❑ Beach strawberry
- ❑ Dune lupine
- ❑ Beach morning glory

Mammals

- ❑ Striped skunk
- ❑ Gray Fox
- ❑ Raccoon

Name _____ Date _____

Field Journal Sheet

Tide Pool Community Species List

Marine Invertebrates

- ❑ Anemone
- ❑ Nudibranch
- ❑ Chitons
- ❑ Red abalone
- ❑ Limpet
- ❑ Sea star
- ❑ Hermit crab
- ❑ Barnacle
- ❑ Goose barnacle

Fish

- ❑ Opaleye

Marine Plants

- ❑ Turkish towel (red algae)
- ❑ Sea lettuce (green algae)
- ❑ Eelgrass
- ❑ Surfgrass
- ❑ Sea palm